## REMARKS/ARGUMENTS

Claims 1-3, 5, 7 and 8 were pending in the present application before this amendment as set forth above. By the amendment, claims 1-3 and 7 are amended, and claim 5 is withdrawn without prejudice.

In the December 10, 2009 Office Action, claims 1-3, 5, 7 and 8 were rejected under 35 U.S.C. §112, 1st and 2nd paragraphs. Claims 1-3, 5, 7 and 8 were also rejected under 35 U.S.C. §103(a) as being unpatentable over Admitted Prior Art (hereinafter "APA") in view of US Pub No. 2007/0159971 to Zhang (hereinafter "Zhang"). Additionally, the substitute specification amended August 18, 2009 were also objected to under 35 U.S.C. §132(a).

Applicant very appreciates the Examiner's careful review of the application.

In response, as set forth above, claims 1-3, and 7 have been amended for better form. Without acquiescing in the propriety of the Examiner's rejections and to facilitate the prosecution of the current application, claim 5 has been withdrawn, which makes the Examiner's rejections under 35 U.S.C. §103 and §112 to claim 5 moot. Applicant reserves every right in canceled and withdrawn claims to file continuation/divisional applications.

Moreover, applicant has further amended the specification in compliance with 37 C.F.R. 1.52(a) and (b). Applicant respectfully submits herewith a marked up copy of a substitute specification that marks all the changes made in the amendment, and also a clear copy of the substitute specification that includes all the changes made in the amendment.

Support for the amendments can be found in the disclosure, as originally filed. Applicant asserts that no new matter is added.

Any amendments to the claims not specifically referred to herein as being included for the purpose of distinguishing the claims from cited references are included for the purpose of clarification, consistence and/or grammatical correction only.

It is now believed that the application is in condition for allowance and such allowance is respectfully requested.

The following remarks herein are considered to be responsive thereto.

## Objections to the Specification

The Office Action objected to the substitute specification submitted August 18, 2009 under 35 U.S.C. §132(a).

In response, as set forth above, applicant has further amended the substitute specification of August 18, 2009 in compliance with 37 C.F.R. 1.52(a) and (b) and under 35 U.S.C. §132(a). Accordingly, Applicant respectfully requests the objection be withdrawn. The detailed amendments and statements are as follows:

Applicant respectfully submits that the limitation of "*recording online time*" disclosed in page 1, lines 7-9 (paragraph 01) and other sections of the substitute specification is an English translation of the limitation of "上网计时" in Chinese which is recited in the PCT publication No. WO2005/004388, (please refer to page 1 paragraph 01 of the PCT publication No. WO2005/004388). Thus, the limitation of "*recording online time*" is originally disclosed.

In page 2, paragraph 01 of the specification, "time recording" has been amended to "charging" which is originally disclosed.

In page 3, paragraphs 02 and 05 of the specification, "recording the amount of online time" has been amended to "recording the online time". As stated above, "recording the online time" is originally recited in the PCT publication No. WO2005/004388.

In page 3, paragraph 05 of the specification, "providing a fee calculation server in communication with the broadband access server for recording the amount of online time of the user and starting recording the online time of the user by the fee calculation service when receiving an instruction of the broadband access server after the user accesses the broadband access server and is authenticated successfully" has been amended to "authenticating the user trying to access to the broadband access server, and informing a charging server in communication with the broadband access server to start charging the user if the user is successfully authenticated" which is originally disclosed.

In page 4, paragraph 01 of the specification, "In one embodiment, when the circular link list is not fully filled, step (d) further comprises the step of saving the newly detected data flow as the content of the head pointer, and moving the head and tail pointers down a position in the circular link list. When the circular link list is full, step e) further comprises the step of examining the newly detected data flow and the content of the head pointer element, when the difference between the newly detected data flow and the content of the head pointer exceeds the flow threshold, moving the head and tail pointers down a position in the circular link list, and

saving the newly detected data flow as the content of the head pointer" has been amended to "In one embodiment, the method further comprises the steps of: comparing the current element number of the circular link list with the target element number of the circular link list, if the current element number of the circular link list is less than the target element number of the circular link list, then saving the newly detected data flow as the content of a head pointer of the circular link list, adding an element to each inner time interval and pointing a tail pointer of the circular link list to the newly added element. In one embodiment, the method further comprises the steps of: comparing the difference between the newly detected data flow and the content recorded in the head pointer with the flow threshold, if the difference between the newly detected data flow and the content of the head pointer exceeds the flow threshold, then moving the head pointer and the tail pointer down one position in the circular link list, and saving the newly detected data flow as the content of the tail pointer, otherwise, deciding the user is in the IDLE state", which is originally disclosed.

Furthermore, "fee calculation server" in the specification is amended to "charging server" which is originally disclosed.

Applicant respectfully submits herewith a marked up copy of a substitute specification that marks all the changes made in the amendment, and also a clear copy of the substitute specification that includes all the changes made in the amendment. Applicant asserts that no new matter is added in the substitute specification.

## Claim Rejections under 35 USC §112, 1<sup>st</sup> paragraph

The Office Action rejected claims 1-3, 5, 7 and 8 under 35 U.S.C. §112, 1<sup>st</sup> paragraph, as failing to comply with the enablement requirement.

In response, as set forth above, claims 1-3 and 7 have been amended, and claim 5 has been withdrawn. Applicant respectfully submits that claims 1-3, 7 and 8, as amended, comply with the enablement requirement, and accordingly requests that the claim rejections under 35 U.S.C. §112, 1<sup>st</sup> paragraph be withdrawn. The detailed amendments and statements are as follows:

In claim 1, "fee calculation server" and "fee calculation service" have been amended to "charging server" which is disclosed in the original written description.

In claim 1, "recording the amount of online time" has been amended to "recording online

time" which is originally disclosed.

No new matter has been added.

## Claim Rejections under 35 USC §112, 2nd paragraph

The Office Action rejected claims 1-3, 5, 7 and 8 under 35 U.S.C. §112, 2nd paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In response, as set forth above, claims 1-3 and 7 have been amended, and claim 5 has been withdrawn. Applicant respectfully submits that claims 1-3, 7 and 8, as amended, particularly point out and distinctly claim the subject matter of the invention. Accordingly, applicant respectfully requests that the claim rejections under 35 U.S.C. §112, 2nd paragraph be withdrawn. The detailed amendments and statements are as follows:

In claim 1 step a), "setting an inner time interval for monitoring a data flow of the user in the broadband access server, an outer time interval for detecting an IDLE state outside the broadband access server and a flow threshold for counting the data flow of the user in the broadband access server" has been amended to "setting an inner time interval at which a data flow of the user is monitored in the broadband access server, an outer time interval at which an IDLE state of the user is detected outside the broadband access server and a flow threshold". Applicant respectfully submits that the amended step a) is clearly defined. For example, "monitored " is done "in the broadband access server" and "detected" is done "outside the broadband access server". Additionally, "the inner time interval" is not defined for monitoring a data flow, "the outer time interval" is not defined for detecting an IDLE state, and "the flow threshold" is not defined for counting the data flow of the user. Therefore, the scope of the claim is clearly defined.

In claim 1 step b), "providing a fee calculation server in communication with the broadband access server for recording the amount of online time of the user and starting recording the online time of the user by the fee calculation service when receiving an instruction of the broadband access server after the user accesses the broadband access server and is authenticated successfully" is amended to "authenticating the user trying to access to the broadband access server, and informing a charging server in communication with the broadband access server to start charging the user if the user is successfully authenticated". Applicant

respectfully submits that the amended step b) is clearly defined. For example, the terms
"providing" and "fee calculation service" have been deleted, the phrases "receiving an
instruction of the broadband access server", "an instruction of the broadband access server" and
"for recording the amount of online time of the user" have been deleted, and the phrase "starting
recording" has been amended to "start charging". Additionally, the step of "providing" has been
amended to "authenticating the user".

In claim 1 step c), "wherein the element number of the circular link list is the number of
times of the outer time interval to the inner time interval" is amended to "wherein a target
element number of the circular link list is a result of dividing the outer time interval by the inner
time interval". Applicant respectfully submits that the amended step c) is clearly defined.

In claim 1 step d), "repeatedly detecting the data flow of the user in the broadband access
server at each inner time interval, and recording the detected data flow as a content of a head
pointer of the circular link list in turn, until a difference between the newly detected data flow
and the content recorded in the head pointer is not more than the flow threshold" is amended to
"detecting in the broadband access server the data flow of the user and obtaining a current
element number of the circular link list for the user at inner time interval, and updating the
circular link list for the user until the current element number of the circular link list is equal to
the target element number of the circular link list". Applicant respectfully submits that the
amended step d) is clearly defined. For example, as claimed, "detecting" is performed "in the
broadband access server", and "detecting" and "obtaining" are both performed at inner time
interval.

In claim 1 step e), "deciding the user in the IDLE state in the broadband access server
when the difference between the newly detected data flow and the content recorded in the head
pointer is less than the flow threshold" has been amended to "deciding whether the user is in the
IDLE state by comparing the difference between the newly detected data flow and the content
recorded in the head pointer with the flow threshold". Applicant respectfully submits that the
amended step e) is clearly defined. For example, "deciding whether the user is in the IDLE state"
is clear. Additionally, a step of "comparing the difference between the newly detected data flow
and the content recorded in the head pointer with the flow threshold" is added.

In claim 1 step f), "stopping recording the online time of the user by the fee calculation
service according to an instruction of the broadband access server" has been amended to

"informing the charging server to stop charging the user if the user is decided in the IDLE state".

Applicant respectfully submits that the amended step f) is clear. For example, "fee calculation service" has been amended to "charging server". Additionally, "according to an instruction of the broadband access serve" has been deleted.

Additionally, claims 2, 3, and 7 have been amended accordingly.

Applicant respectfully submits that claims 1-3, 7 and 8, as amended, particularly point out and distinctly claim the subject matter of the invention.

No new matter has been added.


## Claim Rejections under 35 USC §103

The Office Action rejected claims 1-3, 5, 7 and 8 under 35 USC §103(a) as being unpatentable over the APA in view of Zhang.

In response, as set forth above, claims 1-3, and 7 have been amended, claim 5 has been withdrawn. Applicant respectfully submits that such amendments have overcome the to the 35 U.S.C. §103 rejections.

Amended claim 1 defines a method of recording online time of a user in a broadband access server. The method, among other things, comprises the steps of: a) setting an inner time interval at which a data flow of the user is monitored in the broadband access server, an outer time interval at which an IDLE state of the user is detected outside the broadband access server and a flow threshold , and the inner time interval being shorter than the outer time interval; b) authenticating the user trying to access to the broadband access server, and informing a charging server in communication with the broadband access server to start charging the user if the user is successfully authenticated; c) establishing in the broadband access server a circular link list having a number of elements for the user to record the data flow of the user, wherein a target element number of the circular link list is a result of dividing  the outer time interval by the inner time interval; d) detecting in the broadband access server the data flow of the user and obtaining a current element number of the circular link list for the user at inner time interval, and updating the circular link list for the user until the current element number of the circular link list is equal to the target element number of the circular link list; e) deciding whether the user is in the IDLE state by comparing the difference between the newly detected data flow and the content recorded in the head pointer with the flow threshold; and f) informing the charging server to stop charging

the user if the user is decided in the IDLE state.

APA discloses a detection method of the IDLE state of a user, in the detection method of APA, "a timer is directly configured such that data flow of a user is detected periodically at each interval so as to decide whether an increment between the user's data flow and the last check point is less than a threshold (assigned value); if the increment is not greater than the threshold, the user is considered offline; otherwise, the user is considered online or downloading" (Please refer to the paragraph from page 2 lines 4-8 of the specification of the present invention). Additionally, APA also discloses a kind of data structure-circular link.

By comparing amended claim 1 of the present invention with APA, it can be seen that there are at least the following distinguishing technical features between claim 1 of the present invention and APA:

1) setting an inner time interval at which a data flow of the user is monitored in the broadband access server, an outer time interval at which an IDLE state of the user is detected outside the broadband access server and a flow threshold , and the inner time interval being shorter than the outer time interval. APA only discloses "*a timer is directly configured such that data flow of a user is detected periodically at each interval*", however, APA does not disclose "**inner time interval**" and "**outer time interval**", and also does not disclose "**the inner time interval being shorter than the outer time interval**". That is, in APA, there is *only one time interval*, while in claim 1 of the present invention, there are **two different time interval** which are "inner time interval" and "outer time interval", and the inner time internal is shorter than the outer time interval.

2) establishing in the broadband access server a circular link list having a number of elements for the user to record the data flow of the user, wherein a target element number of the circular link list is a result of dividing the outer time interval by the inner time interval. APA disclose a kind of *data structure* "circular link list", however, APA does not disclose "**a circular link list having a number of elements for the user to record the data flow of the user**", and does not disclose "**a target element number of the circular link list is a result of dividing the outer time interval by the inner time interval**". "circular link list" in APA is different from "a circular link list having a number of elements for the user to record the data flow of the user". "circular link list" in APA is a kind of data structure for storing data, while "a circular link list having a number of elements for the user to record the data flow of the user" in claim 1 of the

present invention is used to record the data flow of the user.

3) detecting in the broadband access server the data flow of the user and obtaining a
current element number of the circular link list for the user at inner time interval, and updating
the circular link list for the user until the current element number of the circular link list is equal
to the target element number of the circular link list. APA disclose a kind of *data structure*
"circular link list", however, APA does not disclose "**obtaining a current element number of
the circular link list for the user at inner time interval**", and does not disclose "**updating the
circular link list for the user until the current element number of the circular link list is
equal to the target element number of the circular link list**". As stated above, APA only
discloses a kind of data structure for storing data-"circular link", but APA does not disclose
associating "circular link list" with "inner time interval" and updating the circular link list.

Therefore, APA does not disclose the above technical features defined in claim 1 of the
present invention.

Thus, the technical scheme of claim 1 provides a method of recording online time of a
user in a broadband access server. The technical scheme of claim 1 "defines a circular link list
corresponding to a login user, regarding each element in the circular link list, the content of the
head pointer records a data flow that is detected in turn and when the assigned threshold is
exceeded, and the tail pointer is pointed to the next element of the circular link list, so that the
data flow of the user can be monitored dynamically". In such a way, the detection precision is
based on the inner time interval, so, the detection precision is improved and the detection error is
reduced (Please refer to the paragraph, page 4 lines 14-21 of the specification of the present
invention). Therefore, the technical scheme of claim 1 solves the problems in detecting IDLE
state (Please refer to the paragraph from page 2 lines 30 and 31 through page 3 line 1 of the
specification of the present invention).

The detection method of APA is distinctly different from the technical scheme of claim 1.
In the detection method of APA, only a timer is configured to detect data flow of user at each
interval. The detection method of APA has various defects, such as: due to inaccuracy of fee
charging, a user in an IDLE state may be considered as in a normal online state; and due to fixed
time intervals, the state of a user may wrongly be detected (Please refer to page 5 lines 12-19 of
the specification of the present invention). The Office Action pointed out "APA does not disclose
using the circular link programming technique in detecting IDLE state. However, it would have

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been obvious to one of ordinary skill in the art, e.g. one of ordinary skill in the art of computer and programming, to use various programming technique, including a circular link list which yield predictable results. However, Applicants think that this is not true. "circular link list" is a kind of data structure used in programming technique, but "circular link list" in programming technique is to store data, and is not used to detect IDLE state of an online user. Therefore, the problem to be solved by the "circular link programming technique" of APA is totally different from the problem to be solved by the "circular link list" used to detect an IDLE state in claim 1 of the present invention. Thus, APA lacks the motivation to effectively solve the technical problem to be solved in the present invention.

Zhang disclose an authentication, authorization and accounting (AAA) server in communication with the broadband access server. However, Zhang does not disclose the above distinguishing technical feature defined in claim 1 of the present invention.

Further, the prior art, as a whole, does not suggest or teach the above distinguishing technical features of amended claim 1. Applicant respectfully submits that the prior art does not provide any relative teachings for one of ordinary skill in the art to acquire the technical scheme defined in Claim 1 of the present invention over Zhang with a combination of the above distinguishing technical features and further solves the technical problem to be solved in the present invention.

Accordingly, applicant respectfully submits that the Examiner has failed to make a *prima facie* case to support the rejections to claim 1 under 35 U.S.C. §103(a) over APA in view of Zhang. First, there is no suggestion or motivation to modify the references or combine the reference teachings. Second, there is no reasonable expectation of success of combining the reference teachings. Finally, even if they were combined, as set forth above, the combination of the references still would not teach or suggest *all* elements of Applicant's claims.

In supporting the obviousness rejections under 35 U.S.C. §103, the Examiner "bears *the initial burden…of presenting a prima facie case of unpatentability*…After evidence or argument is submitted by the applicant in response, patentability is determined *on the totality of the record*." *Ex parte Wada and Murphy*, BPAI Appeal No. 2007-3733 (January 14, 2008), and "*Office personnel must articulate*", among other things, "*a finding that the prior art included each element claimed* …", MPEP 2143 (A)(1). The "*unwitting application of hindsight" is inappropriate. Ex parte So and Thomas*, BPAI Appeal No. 2007-3967 (January 4, 2008). In

other words, the Examiner's "rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006). (MPEP §2142). (Emphasis added.)

Therefore, for at least the foregoing reasons, in particular, because the Examiner did not present "a finding that the prior art included each element claimed" by amended claim 1, independent claim 1 is patentable under 35 U.S.C. § 103(a) over APA and Zhang.

Accordingly, claims 3-7, which depend from now allowable amended claim 1, are patentable at least for this reason.

Applicant respectfully submits that claims 2, 3, 7 and 8 are in condition for allowance because they depend on the independent claim 1 that is in condition for allowance, as discussed *supra*.

## CONCLUSION

Applicant respectfully submits that the foregoing Amendment and Response place this application in condition for allowance. If the Examiner believes that there are any issues that can be resolved by a telephone conference, or that there are any informalities that can be corrected by an Examiner's amendment, please call the undersigned at 404.495.3678.

Respectfully submitted,
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